REMARKS/ARGUMENTS

The Office Action of April 19, 2004, has been carefully considered.

It is noted that the drawings are objected to under 37 C.F.R. §1.83(a).

Claims 1, 2, 12, 13, 18 and 21 are objected under 35 U.S.C. §102(b) over Japanese reference 06272836 to Samejima et al.

Claims 3-7 and 15 are rejected under 35 U.S.C. §103(a) over Samejima et al. in view of the patent to Khinkis et al.

Claim 17 is rejected under 35 U.S.C. §103(a) over Samejima et al. in view of the patent to Breen et al.

Finally, it is noted that claims 8-11, 14, 16, 19 and 20 would be allowable if rewritten in independent form.

In connection with the Examiner's objection to the drawing as not showing every feature of the invention specified in the claims, applicants respectfully submit that the features mentioned by the Examiner are shown in Fig. 3B. As seen in this figure, all four walls of the flow duct have a first wall section 28 having first nozzles 24a. The first wall sections are arranged in a peripheral direction against the rotating flow in each case at the start of the wall and at a distance from the first wall section of an adjacent wall. The nozzles of all four walls lie in a common injection plane 22. Thus, it is submitted that all of the features mentioned by the Examiner are shown in the originally filed drawings.

In view of these considerations, it is respectfully submitted that the objection to the drawings under 37 C.F.R. §1.83(a) is overcome and should be withdrawn.

In view of the Examiner's rejections of the claims, applicants have canceled claim 3 and amended claims 1, 4-7 and 9.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the references.

The present invention relates to a device for producing a rotating flow in a flow-duct which comprises a flue-gas outlet of an incineration plant, in particular of a garbage incineration plant. The flue-gas mixture enters the flow duct at a high speed, its basic direction is indicated

by the arrow 16 in Fig. 1, namely a vertical upward direction. When injecting jets with the first and second nozzles, the rotating flow is produced. The first nozzles of a first wall are arranged so that the angle lying in the injection plane between the wall and the injected jet is approximately 90°, whereas in the second nozzles of a wall section are arranged so that the angle β lying in the injection plane between the jets injected from the first and the second nozzles is greater than 0 and are oriented diagonally towards the center of the flow duct. This means that all the jets which are injected by the first nozzles are parallel to each other and all the jets injected by the second nozzles are parallel to each other (see also Fig. 1B). Moreover, the distribution of the first nozzles over the first wall section having a length of $0.5b < I_1 < 0.8b$ ensures that the jets pass right into the center of the flow duct (see page 2, lines 24-26 of the specification). This arrangement of the first and second nozzles results in a complete intermixing of the flue-gas mixture. This means that there is also an intermixing in the center of the flow. Due to this intermixing and optimum secondary combustion of the flue-gas mixture can be ensured and the desired low emission values can be maintained.

Samejima et al. disclose a rotating flow that is generated in an upper reduction region of the combustion region by injection of secondary air in a direction that is inconsistent with the center of the reduction region through nozzles 13a and 13b arranged on the same horizontal plane. As shown in Fig. 2 of this reference, the angle lying in the injection plane between the wall and the injected jets is 90°. Samejima et al. do not disclose a device having the features recited in independent claim 1 presently on file.

In view of these considerations, it is respectfully submitted that the rejection of claims 1, 2, 12, 13, 18 and 21 under 35 U.S.C. §102(b) over the above discussed reference is overcome and should be withdrawn.

The patent to Khinkis et al. discloses a process and an apparatus for the combustion of waste. The process results in the simultaneous reduction of nitrogen oxides (NO_x), carbon (PCDF) and other organic emissions. During this process, preferably natural gas is injected above the burning waste to provide a sufficient temperature and a sufficient length of time to create a mostly reducing zone which decomposes nitrogen oxides (NO_x) entering the reduction zone and also uses secondary air or overfire air to reduce other emissions such as carbon

monoxide (CO), total hydrocarbons (THC), dioxins (PCDD), and dibenzofurans (PCDF), without forming significant additional NO_x. The overfire air nozzles can be positioned at angles relative to the wall so that at least one swirl, preferably multiple swirls, is/are formed within the combustion chamber. As can be seen from Fig. 3, all air nozzles are distributed at the four walls in different angles. In contrast to the presently claimed invention, they are not arranged in a first wall section where the angle β lying in the injection plane between the jets injected from the first and second nozzles is greater than 0. The Examiner combined this reference with Samejima et al. in determining that claims 3-7 and 15 would be unpatentable over such combination. Applicants respectfully submit that a combination of these two references would not lead to the invention recited in the independent claim no on file. By combining these references, one skilled in the art would learn that it is no longer necessary to have a first wall section as shown in Figs. 2 and 3 of Samejima et al., but instead to have a plurality of nozzles which are arranged on all four wall sections with varying angles. In contrast to the presently claimed invention, such an arrangement would have no controlled air flow and would be of low efficiency. The combination does not teach a device having an arrangement of first nozzles and second nozzles as recited in the claims presently on file.

In view of these considerations, it is respectfully submitted that the rejection of claims 3-7 and 15 under 35 U.S.C. §103(a) over a combination of the above discussed references is overcome and should be withdrawn.

The patent to Breen et al. discloses an apparatus and a method for in-furnace reduction of nitrogen oxide emissions in flue-gas. The fuel injection devices of Breen eta l. may be a pipe having an annular opening as shown in Fig. 4. The nozzles of the pipe are completely different from those recited in claim 17 of the present application because it is only possible to transport one gas. In contrast thereto, as shown in Fig. 5 of the present invention, annular gap nozzles are used for injection of fresh secondary air and recirculated flue-gas. This means that <u>two</u> different gases are injected. When using the nozzles according to Breen, this would result in a plugging of the nozzles, which is highly undesirable. The Examiner combined Breen et al. with Samejima et al. in determining that claim 17 would be unpatentable over such combination. For the reasons

given above, it is submitted that the combination does not teach the features recited in the claims presently on file.

In view of these considerations, it is respectfully submitted that the rejection of claim 17 under 35 U.S.C. §103(a) over the combination of the above discussed references is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 19, 2004:

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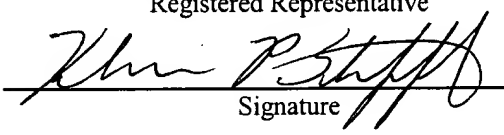
Name of applicant, assignee or Registered Representative



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October 19, 2004

Date of Signature

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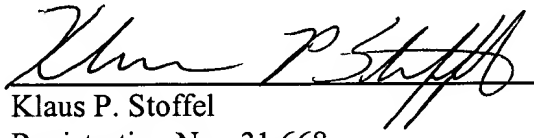
Respectfully submitted,



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